

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an isometric schematic diagram of RF excited gas laser assembly.

FIG. 2 is an isometric schematic diagram showing main components of RF excited gas laser.

FIG. 3 is a transverse cross-sectional schematic diagram of RF excited gas laser.

FIG. 4 is an axial cross-sectional schematic diagram of RF excited gas laser.

FIG. 5 is an isometric schematic diagram of laser tube's main components.

FIG. 6 is a transverse cross-sectional schematic diagram of assembled laser tube.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 is an isometric schematic diagram of RF excited gas laser assembly 1 according to present invention, consisting of laser tube 2 supported by and between front endplate 3 rear endplate 4. Endplates 3 and 4 are mounted on the electronics compartment 5. Sheet metal cover 6 with fans 7 on it is mounted to the endplates 3 and 4 and to the electronics compartment 5 to form air intake openings 8 under the fans 7 and air exhaust openings 9. The cooling air flow 10 enters the laser assembly 1 through the fans 7 and air intakes 8. The cooling air flows over the external surface of the laser tube 2 and over the fins 51 extending off the electronics compartment 5, thus providing an efficient cooling for both the laser tube 2 and electronics compartment 5.

New → **The external surface of the laser tube 2 is cooled exclusively by the flow 10 of the cooling air and not by any additional prior-art heat-sinks being in mechanical contact with the external surface of the tube 2. Laser beam 100 exits the laser through the laser beam opening 30 in endplate 3.**

Unlike in all prior art RF excited gas laser designs, the present invention allows for air flow 10 to uniformly cool all four side surfaces of rectangular (or square) shaped laser tube 2. *New* → **Because all sides of the laser tube 2 are exposed to air flow 10, there is no need for using prior-art finned heat-sinks attached to the laser tube to achieve the same, or comparable, efficiency of the forced air cooling as in prior art air cooled laser designs. Additionally, unlike prior art designs, present invention allows for far more efficient flow of cooling air 10 over the fins 51 of the electronics compartment 5, as explained in more detail in Figures 2 and 3.**

Figure 2 is an isometric schematic diagram showing main components of air-cooled RF excited gas laser. Laser tube 2 has two endcaps 21 and 22, which are welded to the tube forming a vacuum sealed envelope containing laser gas as well as RF electrodes and other laser tube components. Laser resonator mirrors 23 are located on the endcaps 21 and 22 on the opposite